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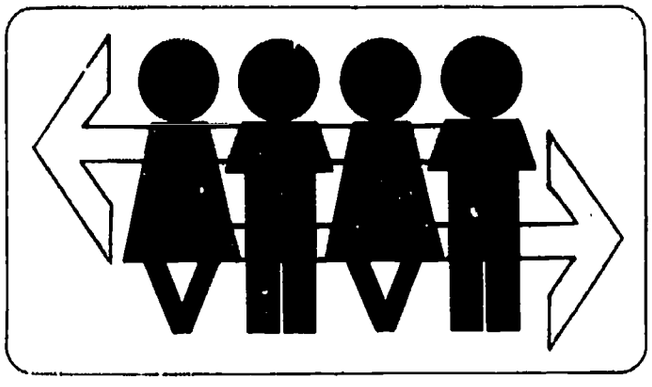
ABSTRACT

This report supplements the final evaluation of the State Dissemination Grants Program (SDGP), a major initiative within the mission of the National Institute of Education to assist state educational agencies in implementing, strengthening, and institutionalizing dissemination services that improve educational practice and equity. A substudy was undertaken to evaluate the role of linkers, i.e., field-based change agents utilized by the dissemination system to link clients' needs to information contained in the resource base, and to assist in the utilization of this information in the school improvement effort. Data from questionnaires returned by state project directors and 136 identified linkers were examined to: (1) identify linker activities, roles, and types; (2) compare project directors' and linkers' notions of "real" and "ideal" linker responses; and (3) determine the relationship between linker behavior and project implementation characteristics for particular settings. It was concluded that: (1) three distinct linker roles can be defined but are not adhered to; (2) there is a potential source of conflict between linkers' and directors' desires regarding linker activity; and (3) there is no significant relationship between linker behavior and contextual characteristics. A copy of the linker questionnaire is appended. (13 tables and 10 references) (NRP)

Volume III.
A Study of Linker Agent Activities and Roles



THE STATE DISSEMINATION GRANTS PROGRAM

Building Capacity for Improvement of Educational Practice

Prepared for:

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Dissemination and Improvement of Practice
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BUILDING CAPACITY FOR IMPROVEMENT OF EDUCATIONAL PRACTICE: AN EVALUATION OF NIE'S STATE DISSEMINATION GRANTS PROGRAM

VOLUME III: A STUDY OF LINKER ACTIVITIES AND ROLES

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PREFACE

The State Dissemination Grants Program is a major initiative within the mission of the National Institute of Education (NIE) "to promote educational equity and improve the quality of educational practice." NIE expects the State Dissemination Grants Program (SDGP) will aid the development of a nationwide capability for educational improvement by assisting a significant group of actors, state education agencies (SEAs), to implement, strengthen, and institutionalize dissemination services that improve educational practice and equity.

Under the sponsorship of the NIE's Program on Dissemination and Improvement of Practice, NTS Research Corporation conducted a multi-year study of the State Dissemination Grants Program (NIE Contract No. 400-76-0166, October 1976 - April 1980) to address two major questions:

- Is dissemination capacity being built as a result of this program? If so, how?
- Is the program having an effect? If so, what is the nature of the effect?

The evaluation was in two phases. Phase I of the study, an eleven-month design phase that extended from October 1976 through August 1977, was devoted to describing the program, clarifying and translating the program's goals into measurable variables, and developing a design, appropriate instrumentation, and data collection and analysis procedures for the study. Familiarization visits to 23 projects, refinements in the study design, and approval of a forms clearance package occurred during September 1977 - August 1978. Phase II, the full-scale evaluation, was initiated in September 1978 and concluded in April 1980. Phase II objectives included describing and tracking the process of building dissemination capacity, documenting the impact of the program, sharing the study findings and analyses with NIE and the states to promote program and project improvement, and developing mechanisms for the continual evaluation and measurement of dissemination capacity.

The final report for the NTS study is comprised of four volumes:

- This volume, Volume III: A Study of Linker Activities and Roles (April 1981), describes how people help others access and use information for school improvement. The study is based on data collected from linkers associated with the program.

- Volume I: Building Capacity for Improvement of Education: An Evaluation of NIE's State Dissemination Grants Program (April 1981), is the final evaluation report of the State Dissemination Grants Program. Included are descriptions of the program and the evaluation, of qualitative cross-case analyses of five capacity building states, generic descriptions of state dissemination systems, and quantitative analyses which identify factors which facilitate and impede the development and institutionalization of SEA dissemination systems. The analyses reveal that dissemination capacity is being built, participation in the program enhances such growth, and SEA dissemination systems of states participating in the program differ from those of non-participating states. A final chapter discusses the policy implications of these and other findings.

- Volume II: 1979 State Abstracts: State Dissemination Efforts (April 1980), profiles dissemination activities in thirty-eight SEAs as of December 1979. In addition to summaries of capacity building project states, this document describes the status of dissemination efforts in states that have not participated in the program.

- Volume IV: A Study of the Development of Scales Measuring Dissemination Capacity (April 1981) is a technical report which describes how the scales were developed and how they have been used.

Prior to 1980, seven major reports were prepared under Phase II of the NTS study:

- 1978 State Abstracts (March 1979) contains summaries of dissemination activities in twenty-nine SEAs as of November 1978. Included are nine SEAs initially funded in 1975, fourteen additional projects initially funded in 1976, and six SEAs initially funded in 1977. An introductory chapter presents an analysis across the individual projects.

- Building Capacity for Improvement of Education: An Evaluation of NIE's State Dissemination Grants Program, Interim Report, (July 1979) is the interim report on the full-scale evaluation of the State Dissemination Grants Program. Included is an overview of the evaluation, purposes of the study, framework, evaluation questions, data collection methods, analytic techniques, and findings. The process used by SEAs to develop capacity for gaining access to information resources and for linking such resources to the needs of educators are described.

- Intelligence for Dissemination Service Capacity: A Conceptual Framework (March 1979) expands an earlier framework into a heuristic device for studying users of educational dissemination services. This conceptual framework was completed to guide the development and refinement of questions, variables, and instrumentation for users and usages of dissemination services.

- Information About Users and Usages: A Literature Review (March 1979) is a companion document to A Conceptual Framework. The review was prepared as part of the design process used to develop the framework.

- The Client Assessment Package (December 1978) is a set of five machine-readable instruments developed by NTS to record the process of seeking and using information and assistance for educational improvement. Linked by a common identification field, the five forms in the package are the Service Form, Process Form, Linker Form, Immediate Feedback Form, and Client Assessment Form. An accompanying Guide to the Client Assessment Package provides instructions for completing and using the forms.

- Request for OMB Clearance with Supporting Documents for the Evaluation of the State Capacity Building Program in Dissemination (June 1978) is the justification and instrumentation package prepared for and approved by the Office of Management and Budget for use in the evaluation.

- A Framework for the Evaluation of the State Capacity Building Program (May 1978) presents the organizing framework for the evaluation.

During Phase I of the NTS study, five major documents were also produced:

- 1977 State Abstracts (September 1977) contains summaries of twenty-four capacity building projects. Included are the ten states initially funded in 1975 and the fourteen additional projects funded in 1976. The abstracts document dissemination activities in the SEAs as of May 1977.

- State Reports (July 1977) contains extensive documentation on nine of the first states funded through the capacity building component of the State Dissemination Grants Program. The mini-case studies examine dissemination activities in nine SEAs as of May 1977.

- A Compendium of Evaluation and Documentation Forms Currently in Use by State Capacity Building Projects (July 1977) is a compilation of selected instrumentation used by the capacity building projects. An accompanying narrative describes the included materials.

- Final Design Report for the Evaluation of the State Capacity Building Grants Program (July 1977) is a two-volume report. Volume I contains the proposed designs for the full-scale evaluation. Volume II contains proposed instrumentation.

- Building Capacity in Dissemination: Literature Review (March 1977) was used to inform the design process. The Literature Review consists of two separate but related products. The first summarizes dissemination literature, using an organizing framework which parallels that followed in NTS design work. The second product consists of an extensive bibliography and outline of topics covered in the Review. Each entry in the outline is followed by a list of relevant citations.

By describing and evaluating the process of developing dissemination capacity in selected SEAs and by assessing the program's effects, the NTS study has provided basic information for the improvement of state dissemination efforts, developed mechanisms for the continual evaluation and measurement of dissemination capacity, and by so doing, attempted to enhance the development of a nationwide dissemination system or configuration for improving educational practice and enhancing educational equity.

ACKNOWLEDGMENTS

This volume, A Study of Linker Agent Roles and Functions, was prepared to supplement the evaluation of the State Capacity Building Program conducted by NTS Research Corporation for the National Institute of Education.

In Volume I, Final Report, we acknowledged those who contributed to our general efforts over the past four years; these acknowledgments highlight those who made contributions specific to the conceptualization, data collection, analysis and production of this substudy.

We would first like to thank the 306 linkers and 25 project directors who participated in the study for without their assistance this study could not have been conducted.

We would also like to thank John Egermeier, Project Officer, of NIE's Research and Educational Practice Program and Robert Goettel of NTS for their very helpful suggestions and critiques. A. Jackson Stenner of NTS offered valuable insights in our effort to develop a typology of linkers.

Other NTS staff also contributed to this report. Norm Frieberg assisted with the computer analyses and Dick Merritt maintained the data base. Our project secretary, Celeste Burnett, with dedication and perserverance, typed and produced the entire report, remaining patient throughout numerous revisions.

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INTRODUCTION

Dissemination is defined as "a two-way process for communicating knowledge relevant to educational needs and problems so that educational decision makers and practitioners can rationally consider alternatives to current practice and the results of research and development in improving educational programs."[1.1] The functions of a dissemination system include the capacity to (1) collect and organize the information upon request; (2) get the information to the client; and (3) assist the client in using the information. NIE, through its State Capacity Building Program, has conceptualized an SEA dissemination system as being comprised of three generic components: (1) an information resource base which contains the knowledge and knowledge-based products clients need; (2) linkages to connect the resources with the people who could benefit from them; and (3) procedures to coordinate the various activities needed so that the system can efficiently organize itself to meet the needs of local educators for school improvement.

This substudy focuses on the linkages used to connect educators with available information. In particular, this study investigates the activities that human agents (i.e., linkers) engage in under this component.

The NIE program announcement describes linkages and linkers as follows:

> Linkage activities are those services which facilitate user access, acceptance, and successful utilization of knowledge resources. While printed materials, media, and electronic devices can contribute to the performance of the linkage function, interpersonal communication is essential in providing client services.
>
> A growing body of research in education and in other fields shows that direct, person-to-person intervention in providing information is both the preferred and the most effective way to

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1.1 National Institute of Education, Program Announcement: State Dissemination Grants Program, FY 78, p. 6.

help others utilize new knowledge and practices. Among linkage roles in educational settings, several seem to provide useful guidance. They include:

- Subject specialists or resource persons serving as full-time staff members of (s)tate educational agencies, intermediate units, or large city school districts;
- Field agents located in educational laboratories and in (s)tate projects supported by Title IV, of Public Law 93-380;
- School study council participants who review, select and introduce new programs in the schools of council members.[1.2]

In sum, while an adequate knowledge base of information files and products and practices are necessary, personal intervention (i.e., the linker) is viewed as a vital means of bridging the gap between research and development on the one hand and educational practice on the other.

Linkers (alternatively referred to as personal linkage agents or field agents) are therefore utilized by the dissemination system to perform activities that link the client's needs to information contained in the resource base and assist in the utilization of the resulting information in the school improvement effort. Linkers engage in activities which range from collecting information from a resource base and providing this information to clients at the local level, to providing direct assistance in the implementation of a new program or practice. The linker, therefore, may be considered as a field-based change agent who assists in the improvement of school practices through providing increased access and use of knowledge and practices.

Although the linker's role is seen as vital in bridging the gap between research and practices, limited research has been conducted to describe what linkers actually do. Most delineations of linker activities and roles have been theoretical, and have originated within the context of the general

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[1.2] Ibid., p. 12.

literature concerning innovation and change. Havelock (1973), Piele (1975), Crandall (1977), and Butler and Paisley (1978) have delineated theoretical modal roles that linkers fulfill; the roles identified by these theorists are highly similar, and are briefly described below, utilizing Butler and Paisley's terminology. These roles are:

> Resource finder: a linker who serves as a mediary between the client with an information need or problem and the resource base; the role includes such activities as collecting and organizing information, analyzing information, and monitoring ideas;
>
> Process helper: a linker who aides the client in the problem-solving and innovation process; while the process helper may prefer a particular approach to dealing with technical or interpersonal processes, he or she does not propose a particular solution, decision, or resolution. This role includes such activities as planning, influencing, analyzing problems, intervening, and managing interpersonal conflict;
>
> Solution-giver: a linker who offers a solution or set of solutions to a client that is adapted to fit the client's needs. This role includes such activities as implementing, marketing, and producing;
>
> Generalist (or alternatively Havelock's "Catalyst"): a linker who primarily creates lines of communication with clients and helps to create the environment for change through communicating and disseminating activities.

These roles are not considered mutually exclusive. It is conceivable that linkers serve multiple roles and, in fact, Butler and Paisley have described the linker who performs all of the above described modal roles.

Objectives of the Present Study

While intuitively appealing, these linker roles have not been empirically investigated; in fact, only two studies have directly examined actual linker roles and their impacts (Sieber, Louis, and Metzger, 1972; Louis, 1977), and these studies were based on a limited sample of seven linkers. The first objective of the present study, then, is to identify those

activities, or behaviors that characterize a role, or set of roles which describe or characterize "types" of linkers. This should be of interest to researchers in future investigations of linker roles. It should also aid in NIE's approach to linker training and to other NIE programs that are designed to provide an interpersonal component as a mechanism for promoting program improvement.

The second objective is to assess linker activities in terms of the activities linkers are perceived to actually do compared to what activities they should or could be doing. The attainment of this objective involves three sets of comparisons. The first set compares linkers' perceptions of the activities they actually perform with activities they would "ideally" like to perform. This comparison provides us with an indication of the congruence of "real" with "ideal" perceptions, and may serve as a proxy measure of the satisfaction that linkers have with regard to their position. The second set compares "real" and "ideal" linker activities as perceived by project directors to see if there are distinctions between activities directors perceive linkers to be engaged in and the activities they would like the linkers to perform. Finally, the third set of comparisons are between linkers' and project directors' perceptions of linker activities and roles.

These determinations should further our understanding of how differences or congruencies may impact upon the operations of a dissemination system. The findings should therefore be of importance to practitioners and to NIE with respect to any dissonance of perceptions linkers have of the "real" versus "ideal" configurations of their activities and roles, and the possible conflicts which may exist as a result of project directors' perceptions of "real" and "ideal" linker activities and roles or conflicts in the way linkers and project directors view the linker role.

The third major objective of this study is to examine whether states with particular demographic characteristics (e.g., size, number of school districts) tend to have similar kinds of linker activities or whether the organizational climate of the SEA (e.g., modernity, orientation to change) has an impact upon the type of desired or achieved linker activities or roles.

This study should provide information which is helpful in understanding the role(s) performed by linkers and in understanding the points of tension in the interface between the dissemination system and the linkers that serve it. We believe that this study will add both to the conceptualization of linker roles and to the practical understandings of linker functions.

Summary of Findings

1. The activities that linkers report engaging in form discrete clusters of behaviors which correspond to roles which have been hypothesized in the literature.

2. However, linkers rarely are "pure" types; rather than performing one role exclusively, the reported linker behaviors usually encompass more than one role or set of behaviors.

3. Linkers and project directors generally agree on the behaviors linkers actually engage in. However, linkers express a desire to engage in a set of different activities (primarily implementation) to a greater extent than project directors desired, thus indicating a potential source of conflict or dissatisfaction.

4. No significant relationships were found between linker behaviors and contextual characteristics. However, those linkers directly engaged in facilitating school improvement processes were more likely to be better trained and employed on a full-time rather than part-time basis.

Structure of the Report

In the rest of this volume we present the results of our investigations. In Section 2 we examine linker activities and assess whether discernible roles and typologies of linkers exist. In Section 3 we compare the congruence between perceptions of linkers' "real" and "ideal" linker activities

and roles. In Section 4 we examine the relationships between project directors' perceptions of linker roles and contextual characteristics. Section 5 summarizes the key findings of each section and presents a set of recommendations.

LINKER ACTIVITIES, ROLES, AND TYPES*

The objectives of this section are to: (1) determine the extent to which linkers perform various identified activities; (2) assess whether these activities constitute a heterogenous mixture or form interpretable homogenous clusters which characterize various linker roles; (3) examine the extent to which these empirical roles match theoretical roles, primarily those of Butler and Paisley, 1978; and (4) assess the extent to which a useful typology of linkers can be developed, based on empirical data.

Method

Sample. The sample was composed of individuals who were identified by six directors of State Capacity Building Projects as "linker agents" in their states. The project directors used three selection criteria to nominate linkers: those who (1) facilitate educational improvement; (2) use R&D based materials; and (3) perform boundary-spanning roles.[2.1] Data were collected from linkers who met all three selection criteria. Response to the data collection instruments was voluntary and not all of the linkers in each state necessarily responded to the instrument. Therefore this should be considered a self-selected sample. Data collection occurred during a three month period, July, 1979 to September, 1979. Out of a total of 161 respondents from the six states, 136 with complete activity data are included in the analysis. The numbers of respondents, by state, are shown in Table 2.1.

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* This portion of the study expands upon work done in a previous study by Madey (1979).

2.1 The boundary-spanning function according to Butler and Paisley (1978), refers to the linker's functions of bringing into an organization, or into a unit within an organization, the knowledge and skills it needs but lacks.

TABLE 2.1

Linkers By State*

State	Number of Linkers
A	14
B	28
C	11
D	3
E	73
F	7
Total	136

Material. To obtain data from linkers, an instrument called the "Linker Form" was developed and pilot-tested (Madey and Everett, 1978). The Linker Form is a four-page, machine-readable instrument designed by NTS Research Corporation for this evaluation of the State Capacity Building Program (see Appendix A). The major portion of the instrument collects data concerning the extent to which linkers perform various linking activities, and the extent to which they would prefer to perform these activities. The activities were those identified by Butler and Paisley (1978) in their theoretical conceptualization of linker roles (see Figure 2.1). For each activity, the linker noted on a 5-point scale, (with 1 meaning 'never' to 5 meaning 'almost always'), the extent to which he or she performs the activity and the extent to which he or she would ideally like to perform the activity. The Linker Form collects additional data concerning the linker's context, including locus of employment (LEA, SEA, etc.), educational background, types of assistance, focus of services, and previous and present positions.

* The data on organizational affiliation contained a number of multiple responses indicating that linkers identified with different levels in the SEA. For this reason, no further analyses were conducted using these data. However, we have classified the level of the linkers as follows: 89 were at the LEA; 30 at Intermediate Units; 9 at the SEA; and 1 at the Post Secondary level. No data were available for 7 linkers.

Activity	Example
1. Communicating	Maintaining open personal communication with clients.
2. Disseminating	Sharing information with clients in a two-way process.
3. Marketing	Promoting awareness of available services.
4. Collecting Information	Securing and arranging information for client problems.
5. Analyzing Problems	Translating client problems into information and resource needs.
6. Analyzing Information	Determining the relevance of information to client problems.
7. Monitoring Ideas	Keeping abreast of recent education practices and innovations.
8. Intervening	Proactively seeking client needs.
9. Planning	Preparing for future needs and services.
10. Influencing	Promoting concepts and ideas for client utilization.
11. Implementing	Assisting clients to install a new procedure.
12. Producing	Developing materials or procedures for client utilization.
13. Managing Conflict	Helping others resolve discord

FIGURE 2.1 Selected Linker Activities and Examples of Each Activity

Results

The data for this subsection were analyzed in four stages:

Stage 1: The activities linkers said they performed were examined in order to assess whether they constituted a completely heterogeneous mixture, or formed interpretable clusters which could characterize various linker roles.

Stage 2: The extent to which these linker activities could be characterized by Butler and Paisley's theoretical roles was assessed.

Stage 3: Scores for all the identified roles were generated for each of the linkers in the sample. Using these role scores, the presence or absence of linker "types" was determined based on whether or not linkers fell into groups characterized by homogeneous role score profiles.

Stage 4: The extent to which linkers perform each identified role was related to variables describing linkers' background and functions.

Stage 1: Identification of Linker Roles

We first looked at the way each of the activities appeared in the sample of linkers. Table 2.2 shows the basic distributional characteristics of each of the activities that were used in the statistical analyses that follow, and serves as a reference for later interpretation of the results.

TABLE 2.2

Means and Standard Deviations for Each Activity for Total Sample

Activities	Mean	Standard Deviation
Communicating	3.88	0.96
Disseminating	3.57	0.96
Marketing	3.05	0.98
Collecting Information	3.28	1.04
Analyzing Problems	3.04	1.04
Analyzing Information	2.92	0.97
Monitoring Ideas	3.41	0.95
Intervening	2.78	1.03
Planning	3.27	0.98
Influencing	3.06	0.94
Implementing	3.01	1.06
Producing	2 65	1.06

A Pearson product-moment correlational analysis (n=136) was performed to determine the degree of relationship between the activities (Table 2.3). This analysis resulted in intercorrelations that in most cases exceeded .30. Two obvious clusters could be discerned: (1) Collecting Information, Analyzing Information, and Analyzing Problems; and (2) Implementing, Producing, Influencing, and Planning. Correlations below .30 occurred between Collecting Information and several other activities, including Planning, Producing, Implementing, and Influencing.

The inter-activity correlation matrix was submitted to a factor analysis in order to determine if there was a clear patterning of the activities. A principal axis factor analysis of linker activities was used to generate a set of orthogonal factors which were then rotated using the varimax rotation algorithm; the number of factors to be rotated was based on an examination of the eigenvalues produced in the principal axis analysis. Three factors were retained in the final varimax-rotated factor solution.

Table 2.4 presents the percent of total variance accounted for by each of the three retained factors and the varimax-rotated factor structure matrix. Two activities had moderate loadings across all three factors. The remaining ten activities made up the three retained factors. Relatively distinct factor loadings were obtained and these were assumed to represent the empirically-derived clusters of linking activities or linker roles which are described below.

Stage 2: Comparison of Empirical and Theoretical Linker Roles

The factor analysis identified three distinct groups of linking activities. Each group of activities was interpreted as defining an empirically-derived linker role. The three empirically-derived roles were labeled

TABLE 2.3

Pearson Product-Moment Intercorrelations of Linker Activities

Activities	Communicating	Disseminating	Marketing	Collecting Information	Analyzing Problems	Analyzing Information	Monitoring Ideas	Intervening	Planning	Influencing	Implementing
Disseminating	.44										
Marketing	.41	.44									
Collecting Information	.35	.48	.30								
Analyzing Problems	.37	.41	.32	.60							
Analyzing Information	.27	.35	.31	.58	.76						
Monitoring Ideas	.43	.33	.48	.33	.42	.41					
Intervening	.48	.46	.48	.44	.49	.49	.40				
Planning	.30	.38	.37	.17	.28	.27	.46	.43			
Influencing	.43	.47	.44	.25	.35	.33	.43	.53	.59		
Implementing	.32	.41	.37	.22	.44	.36	.50	.52	.65	.65	
Producing	.31	.35	.41	.22	.32	.34	.39	.44	.47	.60	.59

TABLE 2.4

Varimax-Rotated Factor Structure

Factor 1 "Facilitating" (47% of variance)	Factor 2 "Resource Finding" (13% of variance)	Factor 3 "Communicating" (8% of variance)	Activities
.16	.15	.79	Communicating
.25	.30	.64	Disseminating
.32	.11	.69	Marketing
-.03	.76	.39	Collecting Information
.25	.85	.11	Analyzing Problems
.25	.87	.09	Analyzing Information
.47	.30	.40	Monitoring Ideas
.43	.40	.49	Intervening
.79	.07	.20	Planning
.74	.12	.37	Influencing
.84	.22	.15	Implementing
.73	.16	.20	Producing

"Facilitating" (Factor 1), "Resource Finding" (Factor 2) and "Communicating" (Factor 3).

Factor 1, Facilitating, is characterized by high loadings on four of the linker activities: Implementing, Planning, Influencing, and Producing. The Facilitating role combines activities associated with two of Butler and Paisley's theoretical linker roles: solution giver and process helper. Implementing and Producing activities are associated with "solution-giver;" Planning and Influencing are associated with "process helper." The finding that the activities comprising these two theoretical roles formed one empirical role is not unexpected, since the theoretical descriptions of the two roles implied some overlap. For example, in Havelock's (1973) discussion of process helpers and solution givers, the role of the process helper is described as aiding clients in recognizing and defining needs, diagnosing problems and setting objectives, acquiring relevant resources, selecting or designing solutions, adapting and installing solutions, and evaluating solutions to determine the degree to which they have satisfied client needs. The "solution giver" is described as someone who offers solutions to specific problems. According to Havelock, being an effective solution giver involves more than simply having a solution; it involves knowing when and how to offer the solution and knowing enough about the solution to be able to help the client adapt it to his or her needs. A linker may engage in planning and influencing with a client, whether or not he or she is a solution giver or process helper. Both kinds of linkers may engage in implementing and producing activities to come up with a solution: a process helper encourages the client to come up with the solution; the solution giver provides the

solution, rather than working with the client until the client produces a solution that the linker may already have formulated.

Factor 2, Resource Finding, had high loadings on three activities: Analyzing Information, Analyzing Problems, and Collecting Information. Factor 2 resembles the cluster of activities associated with Butler and Paisley's theoretical role of resource finder. However, the empirical assessment suggests that the activities of analyzing information and analyzing problems are more closely associated than the theoretical model would imply. While the theoretical "pure" resource finder type may be an information specialist or resource librarian, we expected that the linkers in this study would go beyond these behaviors. This is so because we have found that linkers attached to State Capacity Building projects are expected to provide additional services; they may analyze the client's problem and informational needs, contact the resource base, and then analyze the information to see how it can be used to solve the client's problem. Even a media specialist within a local school district will probably do more than a search because of his or her closeness and familiarity with the client, and desire to be more helpful through empathy with colleagues (see Havelock, 1973).

Factor 3, Communicating, was defined by high loadings on Communicating, Marketing, and Disseminating activities. The Communicating role, while it resembles the cluster of activities associated with Butler and Paisley's generalist role, stresses the importance of marketing activities, where promoting awareness of available services, including the linker as a valuable resource, is an integral part of the empirical cluster of generalist activities. Those serving in a Communicating role spread the word about services available for improving educational practice, and exchange with clients both

information and potential solutions to problems. As such, the Communicating role provides a link between local client needs and available resources for solving those needs. The importance of marketing activities is primarily due to two factors: (1) the "outside status" of linkers serving this role, where linkers are often external to their clients' organization; and (2) the relative uniqueness of the generalist role (i.e., when compared to the more familiar role of the content specialist), which probably requires extensive role clarification with clients.

Catalyst function. Two activities, Monitoring Ideas and Intervening, had moderate loadings on all three factors. This may indicate that both of these activities are necessary ingredients for each of the three identified linker roles, or at least necessary prerequisites for stimulating additional client interest and demand for the linkers' services. These may correspond to Havelock's (1973) "catalyst" role, in which the linker creates pressure for change. A linker functioning in any of the identified roles might, at the initial stage of the change process, serve as a catalyst to energize or get the process started.

In summary, the factor analysis resulted in three factors which we have interpreted as representing linker roles. The extent to which the empirical roles matched the theoretical roles was then assessed. Factor 1, Facilitating, combines activities associated with two of Butler and Paisley's theoretical roles, process helper and solution giver. Factor 2, Resource Finding, resembles the cluster of activities associated with the theoretical role bearing the same label, although the empirical role also includes the activity of analyzing problems. Factor 3, Communicating, is similar to, but a slightly expanded version of, the theoretical role labeled generalist. In

addition, activities that represent Havelock's theoretical catalyst role are moderately related to all three factors.

Stage 3: Linker Types

The results of the factor analysis allowed us to identify linker roles; however, it did not answer the question of whether there are "pure" types of linkers, or whether, in fact, linkers show a similar profile of activities and only differ in their degree of overall activity.

At one extreme, roles may be mutually exclusive, i.e., a linker may be labelled, on the basis of the obtained factors, as "Facilitator," "Resource Finder," or "Communicator." For example, an NDN-based linker would primarily be a facilitator, who responds to a client's needs by helping implement an adoption of a new program or practice. An information specialist, who handles client requests directly and primarily collects and organizes information, would be a Resource Finder.

In order to identify types, we examined the response patterns of linkers within each of the identified roles to see if they could be divided into a limited number of subsets, or types. First, each linker was assigned a "role score" for each of the three factors. The role score was attained by calculating the average of the ratings for the activities that loaded highest on each factor. For example, a linker's Communicating score was the average of the three activities that defined the Communicating role: Collecting Information, Analyzing Problems, and Analyzing Information. Each role score was further categorized into low (L), medium (M), or high (H). If a linker's role score was below 2.67, the linker was labeled L on that role; a role score between 2.67 and 3.33 was labeled M; a role score above 3.33 was labeled H. Each linker, therefore, received three role scores ranging from low, medium, to high corresponding to the identified factors.

Conceivably, the total number of possible linker types is equal to the number of combinations of L, M, and H on each factor, or 27 possible combinations (3x3x3). However, there are only seven meaningful linker types, including:

- Three "pure" types -- Facilitator; Resource Finder; and Communicator.
- Three types that combine two roles -- Facilitator/Resource Finder; Facilitator/Communicator; and Resource Finder/Communicator.
- One type that combines the three roles -- Facilitator/Resource Finder/Communicator.

In order to group the 27 combinations of scores into the seven types, which would, in turn, determine which linkers "go together," we needed to choose a similarity measure that most suited the important (i.e., relevant) aspects of the data (see Kareev, 1980). Nunnally (1967) notes that a profile of scores involves three kinds of information: level, dispersion, and shape. In terms of this study, level refers to the mean score of the three role scores for each linker's profile; dispersion or scatter refers to the extent of the deviation of the linker's scores from the mean performance (i.e., a profile of H-H-H has no dispersion, while a profile of H-L-M has a considerable amount); and shape refers to the actual contour, or "ups and downs" of the profile. Our choice of a grouping strategy was based on a combination of shape and dispersion, with less importance attached to level, primarily because we were more interested in the relative extent to which linkers performed each role, and the homogeneity of their profiles across roles. We include profiles of the same contour but at different levels within the same type (i.e., the two profiles M-H-M and L-M-L are included in the same type, since they have the same shape but are at different levels; the three

profiles H-H-H, M-M-M, and L-L-L together constitute another type, having the same shape). This allowed us to control for the confounding of differences in linkers' reported general activity level. Figure 2.2 presents the different combinations of scores for each type; Table 2.5 presents the number of linkers of each type by state.

The results indicated that the most frequent type of linker was the eclectic type, where the linker performs all three roles to about the same extent. The next two most frequent types were the Communicator/Resource Finder linker and the Communicator/Facilitator linker, followed by the Communicator pure type. The other three types were negligible in our linker sample.

The results illustrate that, at least for this sample, rarely can linkers be typed into pure roles. The Facilitating and Resource Finding roles neither exist as pure types nor do they often exist in combination with each other. However, the four most frequent types all include the communication function. This indicates that serving as an SCBP linker primarily involves communicating and disseminating activities, usually combined with resource finding activities or facilitating activities, or both kinds of activities.

Stage 4: Relationships between Linker Roles and Linker Background Variables

Simple bivariate correlations were calculated between the extent to which linkers perform each of the identified roles (utilizing the constructed variables) and linker background variables (educational level, professional experience). Using a correlation coefficient of .30 as a standard for significance, the results indicated that educational level and extent of professional experience were significantly associated with the Facilitating role; the association between educational level and Resource Finding approached significance.

Types	Facilitating	Resource Finding	Communicating
I: Facilitator	H	L	L
	M	L	L
	H	M	M
II: Resource Finder	L	H	L
	L	M	L
	M	H	M
III: Communicator	L	L	H
	L	L	M
	M	M	H
IV: Facilitator/ Resource Finder	H	H	L
	M	M	L
	H	H	M
	H	M	L
	M	H	L
V: Facilitator/ Communicator	H	L	H
	M	L	M
	H	M	H
	H	L	M
	M	L	H
VI: Resource Finder/ Communicator	L	H	H
	L	M	M
	M	H	H
	L	M	H
VII: Eclectic	H	H	H
	M	M	M
	L	L	L

FIGURE 2.2 Possible Linker Types with Corresponding Cluster Scores

TABLE 2.5

Number of Linkers of Each Type, by State

Type	State						Total
	A	B	C	D	E	F	
Facilitator	0	1	0	0	1	0	2
Resource Finder	1	2	2	0	2	1	8
Communicator	1	6	0	0	15	1	23
Facilitator/ Resource Finder	0	0	0	0	3	0	3
Facilitator/ Communicator	2	9	1	0	15	0	27
Resource Finder/ Communicator	8	3	3	1	9	5	29
Eclectic	2	7	5	2	28	0	44

While an analysis that related linker roles with current position and locus of employment would have been interesting, the homogeneity of linker positions within four of the six states (i.e., one state's linkers are all SEA-based consultants, each assigned to particular LEAs) prevented such an analysis. It is interesting to note, however, that the linkers in our sample were either former building level teachers or were in their first professional jobs.

Examining Linker Activities and Roles: A Replication

We took advantage of data collected from additional linkers and from SCBP project directors during the course of this study to see if we could replicate the findings from the factor analysis reported above. By conducting the factor analysis upon these groups' responses, we attempted to determine if the factor structure describing linker activities in our original linker sample could be replicated.

Method

Sample. The sample was composed of State Capacity Building project directors in the Cohort I, II, and III states. Out of 27 respondents, 25 with complete activity data were included in the analysis, including eight Cohort I states, twelve Cohort II states, and five Cohort III states. The sample incorporates the project director responses from the six states from which we had obtained linker data, and includes states from all the geographical regions of the country.

Separate factor analyses were run for the "real" and "ideal" responses for three samples: (1) the sample of linkers utilized in the previous section; (2) a larger sample of linkers including additional linkers in the original states and four additional states (n=307); and (3) the Cohorts I through III project directors.

Material. Two sets of response items were included in the Project Director Questionnaire (PDQ) mailed to directors during the 1979 fall data collection. These items asked the directors to rate the extent to which the "typical" linker in their respective projects performed the various activities included in Figure 2.1, and the extent to which linkers should perform each activity.

Comparison of Factor Structures

The empirical roles in the previous section were derived from the activity profile for linkers' "real" world responses. To assess the extent to which the identified linker roles are fundamental (or basic) and replicable (i.e., that the same underlying factors are found among linker activities in different populations or conditions), the factor structures for the different populations, for both their "real" and "ideal" responses, were compared. The resulting factor pattern matrices were compared across the groups for their degree of similarity (Table 2.6). In general, the six sets of factor patterns (3 samples x 2 sets of responses) were highly similar. The factor analyses all yielded the same three factors (Facilitating, Resource Finding, Communicating) whether different populations or sets of variables ("real" versus "ideal") were used, and with similar loadings of variables for each factor. Within each role minimal differences for each factor were found.

Factor 1: The Facilitating role is primarily defined by the following activities: Implementing, Producing, Influencing, and Planning. Whereas Intervening does not load highly for linkers' activities in the "real" world, it was included for linkers in the "ideal" world and for project directors' "real" and "ideal" responses, indicating that the role of Facilitating for these latter conditions involves proactively seeking client needs.

TABLE 2.6

Comparisons of Loadings of Linker and
Project Director Real and Ideal Responses
for Each Factor

Factor 1 -- Facilitator						
Linker Real	Linker Ideal	Linker Real Large Sample	Linker Ideal Large Sample	Project Director Real	Project Director Ideal	Activities
.16	.18	.20	.24	.20	.19	Communicating
.25	.27	.24	.22	.00	.17	Disseminating
.32	.37	.31	.42	.43	-.04	Marketing
-.03	.08	.04	.09	-.06	.16	Collecting Information
.25	.21	.23	.75	.10	.07	Analyzing Problems
.25	.19	.21	.24	.01	-.04	Analyzing Information
.47	.55	.42	.46	.22	.07	Monitoring Ideas
.43	.53	.46	.59	.68	.72	Intervening
.79	.59	.71	.59	.69	.60	Planning
.84	.78	.83	.83	.88	.89	Implementing
.74	.80	.76	.78	.72	.58	Influencing
.73	.76	.80	.73	.86	.57	Producing

TABLE 2.6 (Cont'd)

Comparisons of Loadings of Linker and
Project Director Real and Ideal Responses
for Each Factor

Factor 2 -- Resource Finder						
Linker Real	Linker Ideal	Linker Real Large Sample	Linker Ideal Large Sample	Project Director Real	Project Director Ideal	Activities
.15	.33	.19	.20	-.09	-.12	Communicating
.30	.21	.34	.19	.12	.05	Disseminating
.11	.53	.25	.39	-.40	.28	Marketing
.76	.84	.79	.82	.88	.41	Collecting Information
.85	.63	.80	.69	.78	.90	Analyzing Problems
.87	.86	.88	.82	.92	.79	Analyzing Information
.30	.16	.27	.25	.46	.87	Monitoring Ideas
.40	.63	.27	.46	-.08	-.07	Intervening
.07	.11	.11	.16	.35	.59	Planning
.22	.19	.13	.12	-.00	.00	Implementing
.12	.15	.19	.26	.45	.06	Influencing
.16	.32	.10	.02	.16	.24	Producing

TABLE 2.6 (Cont'd)

Comparisons of Loadings of Linker and
Project Director Real and Ideal Responses
for Each Factor

Factor 3 -- Communicator						
Linker Real	Linker Ideal	Linker Real Large Sample	Linker Ideal Large Sample	Project Director Real	Project Director Ideal	Activities
.79	.83	.82	.84	.89	.71	Communicating
.64	.80	.69	.85	.89	.89	Disseminating
.69	.36	.58	.40	.65	.76	Marketing
.39	.23	.36	.21	.11	-.64	Collecting Information
.18	.47	.24	.37	.00	-.03	Analyzing Problems
.09	.10	.15	.07	-.04	-.42	Analyzing Information
.40	.57	.41	.41	.70	.25	Monitoring Ideas
.49	.14	.42	.03	.44	.14	Intervening
.20	.59	.39	.46	.28	.20	Planning
.15	.41	.24	.24	.08	.09	Implementing
.37	.24	.41	.27	.09	.51	Influencing
.20	.11	.02	.12	.05	-.23	Producing

Factor 2: The Resource Finding role is primarily defined by Analyzing Information, Analyzing Problems, and Collecting Information. Interestingly, project directors indicate, in their "ideal" responses, that the role of resource finding should involve responsibilities for translating information to suit client needs and monitoring recent educational ideas and new practices. Linkers, in their "ideal" responses, indicate that resource finding should be associated with acting in a proactive manner, i.e., intervening (seeking client needs) and marketing (promoting awareness of services).

Factor 3: The Communicating role is primarily defined by the activities of Communicating, Disseminating, and Marketing. One notable difference in factor loadings is that within Linker-Ideal responses, the loading for Marketing decreases. This may indicate that although making clients aware of their services may be a necessary prerequisite for the two-way exchange process, it is not necessarily a desired part of the process itself. Once a general level of awareness of services has been achieved, marketing activities may be of limited importance.

Discussion

The results of this empirical examination of linker behaviors suggests that it is possible to group the various behaviors into three roles: (1) Facilitating, which includes a combination of activities associated with Butler and Paisley's solution giving and process helping roles; (2) Resource Finding, corresponding to Butler and Paisley's resource finding role; and (3) Communicating, corresponding to Butler and Paisley's generalist role. The results of this part of the study also indicated that it is possible to sort linkers into particular subsets, or types; the most frequent types were those that combined two or three of the identified roles.

While the above findings represent a substantial advance in empirical research of linker activities, roles, and types, this study has several methodological limitations. First, it should be noted that the rated activities each linker performed were obtained through a self-assessment instrument; thus, the caveats associated with self-reported data apply to this study. Second, the sample consisted of a self-selected group of linkers. This sample may not be representative of all the linkers serving the projects, and their functioning may differ from other groups of linkage agents who work with local educators. Third, the current study does not attempt to compare the quality of linkers' performance; while this study describes what linkers do, it does not determine how well linkers perform the various identified activities. Finally, and probably most importantly, the list of activities may not be exhaustive since they were predefined and based upon a theoretical conceptualization of what activities linkers perform. This, of course, limits and to a certain extent predetermines the activities which comprise each of the identified linker roles in this study. By limiting the list of activities to those identified by Butler and Paisley, it is very likely that important activities actually performed by linkers were missed. In addition, such a limitation increases the likelihood of lack of ecological validity (i.e., does the response pattern for each linker fit with his or her day-to-day actual functions?), and the likelihood of creating an artificial model rather than a model of naturally-occurring activities and roles. Future studies of linker activities and roles should be more field-oriented, in order to generate the universe of relevant categories and hypotheses.

CONGRUENCE OF REAL AND IDEAL PERCEPTIONS OF LINKER ACTIVITIES

In the major volume of this report,[3.1] we discussed the various configurations of linkers found in project states and noted that most projects employed the strategy of utilizing pre-existent structures for developing linker configurations. Although this may be a convenient ard cost effective strategy, there are consequences and trade-offs for both project directors and linkers. Project directors may not be entirely satisfied with the constraints imposed by preexisting structures. Project directors, for example, might want linkers to perform various activities to a greater extent than they have been, and linkers may feel overburdened by additional responsibilities. Alternatively, project directors may want to restrict the breadth of the linker's activities, and the linker might thereby feel constrained by such limitations. The purpose of this section is to explore such possible areas of dissonance

Method

Because only minimal differences were found in the factor analysis of linker activities, as presented in Section 2 we concluded that it was justifiable to make comparisons between "real" and "ideal" responses and between responses across groups on a role-by-role basis, as well as on an activity-by-activity basis. For the activity-by-activity comparisons, simple t-tests were performed to test for significant differences on the activities. Paired sample t-tests were used to compare "real" and "ideal" responses within the linker sample and within the project director sample. Independent sample

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3.1 Building Capacity for Improvement of Educational Practice: An Evaluation of NIE's State Dissemination Grants Program. Vol. 1: Final Evaluation Report. Contract #400-76-0166. NTS Research Corporation, October 1980.

t-tests were performed for analyses comparing the responses of the two populations. For the role-by-role comparisons, the constructed variables discussed in Section 2 were applied to the linkers' "ideal" activities and to the project directors' "real" and "ideal" activities in order to generate role scores for both populations and for both sets of responses. Independent sample and paired sample t-tests similar to those described above were then performed.

The analysis of the data involved a series of comparisons of the perceptions expressed by linkers and project directors concerning the extent to which the various linker activities are performed or should be performed. We also make comparisons of the behavioral clusters, or roles[3.2] (Facilitating, Resource Finding, Communicating) identified in the first part of this substudy. The comparisons conducted include:

- A comparison of linker "real" and linker "ideal" responses
- A comparison of project director "real" and project director "ideal" responses
- A comparison of linker and project director "real" perceptions within the six states having linker data.

While the above analyses allow us to determine the absolute differences between "real" and "ideal" responses on both an activity-by-activity and on a role-by-role basis, they do not allow us to examine the relative importance attached to each activity or role in comparison to the other activities and roles. In order to determine the relative importance of each activity/role, we rank-ordered them within the linkers' and project directors' "real" and

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3.2 We are using the term "role" to refer to those activities (behaviors) which, as a result of the factor analyses reported in the previous sections,) were identified as tending to occur together. Therefore, it is important that the reader recognize that we are not referring to "linkers" in this series of analyses, but rather to the activities or behaviors in which linkers may engage. To stress this distinction we will use "role" and "behavior clusters" interchangeably throughout the remainder of this report.

the "ideal" response sets. We were then able to compare the ranking of an activity/role for any two sets of responses.

Results

Comparison of Linker "Real" and Linker "Ideal" Responses

The degree to which the linkers' responses to what they "really" do matched their responses to what they would "ideally" like to do was assessed (Table 3.1). The results of the analysis on an activity-by-activity basis, using paired sample t-tests, indicated that for all the activities, there was a highly significant difference ($p < .001$) between the degree to which linkers performed an activity and the degree to which they would like to perform the activity. All differences were in the direction of desiring to do each activity to a greater extent. The activities with the largest differences included Marketing and Disseminating, both of which are a part of the Communicating behavior cluster, followed closely by Monitoring Ideas.

When the mean scores were ranked in order of preference, that ordering reveals that the most performed and preferred activities are Communicating, Disseminating, and Monitoring Ideas. The least performed and preferred activities were Intervening and Producing (both Facilitating cluster activities), and Analyzing Information. While there is little discrepancy at the extremes of most and least performed and preferred activities, there are fluctuations within the middle range. Linkers would ideally like to do relatively more marketing, planning, and implementing and relatively less collecting of information, less analyzing of problems, and less influencing.

The results of the analysis of the behavior clusters (i.e., Facilitating, Resource Finding, Communicating) also yielded highly significant differences. Communicating had the largest difference between "real" and "ideal,"

TABLE 3.1

Paired Sample t-Tests and Rank Orderings of Linker Real versus Linker Ideal Responses for Each Activity and Role

Activity	Linker Real* $\bar{X}$	Rank	Linker Ideal* $\bar{X}$	Rank	t-value
Communicating	3.89	1	4.76	1	11.61
Disseminating	3.56	2	4.66	2	15.16
Marketing	3.05	8	4.35	5	15.26
Collecting Information	3.28	4	4.25	6.5	11.19
Analyzing Problems	3.07	6	4.16	8.5	12.76
Analyzing Information	2.94	10	4.08	10	13.35
Monitoring Ideas	3.41	3	4.65	3	15.02
Intervening	2.78	11	3.79	12	10.11
Planning	3.27	5	4.54	4	14.10
Influencing	3.05	7	4.16	8.5	12.81
Implementing	3.01	9	4.25	6.5	13.90
Producing	2.65	12	3.91	11	13.18
Role					
Facilitating	3.00	3	4.22	2	16.68
Resource Finding	3.09	2	4.16	3	14.68
Communicating	3.50	1	4.59	1	17.67

NOTE: n=134 linkers with complete data for both real and ideal responses. Reported means therefore differ slightly from those reported for the total linker sample.

All t-values significant at the $p < .001$ level

followed by Facilitating and then Resource Finding. Within either the "real" or the "ideal" sets of responses, the differences between Facilitating and Resource Finding are probably not significant; however, the shift in ranks suggests that linkers want to be more involved in the more comprehensive linker functions (i.e., implementation) within the school improvement process.

Comparison of Project Director "Real" and Project Director "Ideal" Responses

The project directors' responses to the activities they perceive linkers are actually performing were compared to how important they felt each activity was for a linker to perform in order to adequately serve his or her clients (Table 3.2). The results of the analysis revealed differing patterns from the corresponding analyses for the linker sample. Whereas linkers wanted to do more in all activities, project directors wanted linkers to perform only seven of the twelve activities to a significantly greater extent. These included Planning and Implementing ($p < .001$), Communicating and Disseminating ($p < .01$), and Marketing, Influencing, and Analyzing Information ($p < .05$). Collecting Information, Intervening, and Monitoring Ideas all retained basically the same absolute values, which resulted in lowered relative rankings for each of them.

Project directors' "real" and "ideal" responses indicated that the most frequent and important activities for linkers to perform are Communicating and Disseminating, followed by translating client problems into information and resource needs, preparing for future needs ar services, and marketing services. Activities that project directors report as least frequently performed include Implementing, Influencing, and Producing. Activities that directors least prefer that linkers perform are, again, Influencing and Producing, as well as Intervening and Collecting Information.

TABLE 3.2

Paired Sample t-Tests and Rank Orderings of
Project Director Real versus Project Director Ideal Responses
for Each Activity and Role

Activity	Project Director Real $\bar{X}$	Rank	Project Director Ideal $\bar{X}$	Rank	t-value
Communicating	4.12	1	4.60	1	3.36**
Disseminating	3.84	2	4.44	2	3.39**
Marketing	3.40	5	3.76	5	2.57*
Collecting Information	3.04	8.5	3.08	9.5	0.23
Analyzing Problems	3.56	4	3.88	3	1.99
Analyzing Information	3.24	6	3.56	7	2.14*
Monitoring Ideas	3.64	3	3.60	6	0.27
Intervening	3.04	8.5	2.96	11	0.37
Planning	3.08	7	3.80	4	4.88***
Influencing	2.64	11	3.08	9.5	2.40*
Implementing	2.68	10	3.24	8	3.65**
Producing	2.20	12	2.56	12	1.89
Role					
Facilitating	2.65	3	3.17	3	4.95***
Resource Finding	3.28	2	3.51	2	2.28
Communicating	3.79	1	4.27	1	4.55***

*$p < .05$
**$p < .01$
***$p < .001$

The results of the analysis of roles indicated that project directors wanted linkers to perform Facilitating and Communicating behaviors to a highly significantly greater extent ($p < .001$) than they perceived them as actually performing. It should be noted, however, that although project directors would like the linkers to perform Facilitating to a much greater extent, it remains the least preferred cluster of behaviors when compared to the directors' other "ideal" responses. The comparisons indicate that, for the most part, project directors perceive their linkers "actual" behavior as being in congruence with the behaviors they would like the linkers to perform. They would prefer that the linkers engage in these activities to a greater extent.

Comparison of Linker and Project Director "Real" and "Ideal" Responses

Comparison of linker "real" and project director "real" responses. The degree to which the linkers' responses to what they "really do" matched what project directors perceived linkers as doing were compared on an activity-by-activity basis and by behavior clusters (Table 3.3). The results indicated only minor discrepancies between linker and project director responses for two activities: project directors thought linkers were engaged in Analyzing Problems to a greater extent than linkers reported ($p < .05$), and they thought linkers were engaged in Producing to a lesser extent ($p < .05$).

The rank-orderings indicated that linkers and project directors felt that Communicating, Disseminating, and Monitoring Ideas were the most frequently performed activities, while Producing and Implementing were consistently among the least frequently performed. An examination of the rank-orderings within each role indicated that (1) the relative frequency of activities within the Communicating role are similar; (2) within the Resource

TABLE 3.3

Independent Sample t-Tests and Rank Orderings of Linker Real versus Project Director Real Responses for Each Activity and Role

Activity	Linker Real $\bar{X}$	Rank	Project Director Real $\bar{X}$	Rank	t-value
Communicating	3.88	1	4.12	1	1.35
Disseminating	3.56	2	3.84	2	1.56
Marketing	3.05	7	3.40	5	1.61
Collecting Information	3.28	4	3.04	8.5	1.01
Analyzing Problems	3.04	8	3.56	4	2.39
Analyzing Information	2.92	10	3.24	6	1.52
Monitoring Ideas	3.41	3	3.64	3	1.10
Intervening	2.78	11	3.04	8.5	1.26
Planning	3.27	5	3.08	7	0.86
Influencing	3.06	6	2.64	11	1.72
Implementing	3.01	9	2.68	10	1.23
Producing	2.65	12	2.20	12	2.11
Role					
Facilitating	3.00	3	2.65	3	1.81
Resource Finding	3.08	2	3.28	2	1.12
Communicating	3.50	1	3.79	1	1.79

$p < .05$
$p < .01$
p : .001 level

Finding role, project directors felt that linkers spend relatively more time analyzing problems and information, and less time collecting information, while linkers reported the opposite; (3) within the Facilitating role, directors felt that linkers did relatively less of each activity than linkers reported. In addition, the comparison of rank-orderings of the behavior clusters indicated that both linkers and project directors view the Communicating role as most frequently performed. However, whereas the linkers' scores are almost equal for Facilitating and Resource Finding, project directors rate Resource Finding as relatively more frequently performed than Facilitating.

Comparison of linker "ideal" and project director "ideal" responses. When the linker "ideal" responses were compared to the project director "ideal" responses (Table 3.4), the discrepancy was striking. For only three activities, Communicating, Disseminating, and Analyzing Problems, did linkers and directors agree on the extent to which linkers should ideally perform them; the rank orderings also indicated that project directors and linkers both agreed that Communicating and Disseminating were the most important activities. Directors wanted linkers to perform the other activities to a significantly lesser extent than linkers wanted to perform them, especially Monitoring Ideas and Intervening (both catalyst activities), Collecting Information, and all the Facilitating activities: Producing, Planning, Implementing, and Influencing.

With respect to the rank orderings of the activities, the major discrepancies between linker and project director responses occurred for Monitoring Ideas, which directors relegated to a less important rank, and activities within the Resource Finding role, where directors felt that analyzing

TABLE 3.4

Independent Sample t-Tests and Rank Orderings of Linker Ideal versus Project Director Ideal Responses for Each Activity and Role

Activity	Linker Ideal $\bar{X}$	Linker Ideal Rank	Project Director Ideal $\bar{X}$	Project Director Ideal Rank	t-value
Communicating	4.77	1	4.60	1	1.31
Disseminating	4.65	2.5	4.44	2	1.49
Marketing	4.36	5	3.76	5	2.96**
Collecting Information	4.26	6.5	3.08	9.5	5.35***
Analyzing Problems	4.18	8	3.88	3	1.58
Analyzing Information	4.09	10	3.56	7	2.82**
Monitoring Ideas	4.65	2.5	3.60	6	6.61***
Intervening	3.81	12	2.96	11	3.55***
Planning	4.55	4	3.80	4	3.85***
Influencing	4.16	9	3.08	9.5	4.69***
Implementing	4.26	6.5	3.24	8	4.54***
Producing	3.92	11	2.56	12	6.14***
Role					
Facilitating	4.42	2	3.17	3	6.30***
Resource Finding	4.18	3	3.51	2	4.03***
Communicating	4.59	1	4.27	1	2.45*

*$p < .05$
**$p < .01$
***$p < .001$

clients' problems and analyzing the information to assess its adequacy were relatively more important than linkers felt they were, whereas they felt that collecting and organizing information was a relatively less important activity than linkers felt it was.

The comparisons of the behavior clusters indicated that project directors wanted linkers to perform Facilitating and Resource Finding ($p < .001$) and then Communicating ($p < .05$) to a lesser extent than linkers did.

Comparison of linker "real" and project director "ideal" responses. When the extent to which linkers say they actually perform each activity and role is compared to the importance that directors attached to each, the two response sets correspond to each other to a greater extent than a comparison of "ideal" linker and "ideal" director responses (Table 3.5). However, six activities differed significantly from each other. Project directors wanted linkers to perform all the Communicating cluster activities to a much greater extent, as well as Analyzing Problems. They also wanted linkers to perform Analyzing Information and Planning activities to a greater extent ($p < .01$). The largest discrepancies, when the relative rankings are compared, are for the activity of Collecting Information, where project directors' responses indicate that they place much less importance on this activity, and Analyzing Problems upon which directors placed much more importance.

When the responses were compared on a role-by-role basis, the results indicated that project directors wanted linkers to do considerably more activities within the Communicating and Resource Finding roles, and there was a great deal of difference in the directors' preference for each role, from Communicating to Resource Finding to Facilitating, whereas for linkers Communicating was the major role, and little difference existed between Resource Finding and Facilitating.

TABLE 3.5

Independent Sample t-Tests and Rank Orderings of Linker Real versus Project Director Ideal Responses for Each Activity and Role

Activity	Linker Real $\bar{X}$	Linker Real Rank	Project Director Ideal $\bar{X}$	Project Director Ideal Rank	t-value
Communicating	3.88	1	4.50	1	3.62***
Disseminating	3.56	2	4.44	2	4.42***
Marketing	3.05	7	3.76	5	3.49***
Collecting Information	3.28	4	3.08	9.5	0.88
Analyzing Problems	3.04	8	3.88	3	4.43***
Analyzing Information	2.92	10	3.56	7	3.33**
Monitoring Ideas	3.41	3	3.60	6	0.84
Intervening	2.78	11	2.96	11	0.76
Planning	3.27	5	3.80	4	2.62**
Implementing	3.01	6	3.24	8	1.02
Influencing	3.06	9	3.08	9.5	0.09
Producing	2.65	12	2.56	12	0.40
Role					
Facilitating	3.00	3	3.17	3	0.94
Resource Finding	3.08	2	3.51	2	2.28**
Communicating	3.50	1	4.27	1	4.78***

*$p < .05$
**$p < .01$
***$p < .001$

Comparison of Linker "Real" and Project Director "Real" Responses, Within States

The above analyses compare responses of linkers from six states with responses of project directors from 25 project states. While not methodologically correct, we felt justified in performing these analyses on the basis of sufficient variability of linker responses within and across states. The major reason for utilizing all the project director data was to obtain a broader-based estimate of how SCB projects, as a whole, regard the activities and roles of linkers in their states.

We then examined the comparability of linker and project director responses for the six states with linker data. Comparisons were made on a descriptive basis; judgments of similarity were based upon whether the project director's score on an activity or role was within ± 1 standard deviation (SD) of the linkers' mean response on each activity and role within the state.

The results can be interpreted both within each state (across activities and roles) and within each activity and role (across states). The results within states revealed that three project directors overestimated the extent to which linkers in their states performed activities and roles: One project director thought that linkers within the state performed eight activities to a greater extent, in particular Planning and Intervening, and overestimated two roles, Facilitating and Communicating; another overestimated four activities, especially Planning, and the Facilitating role; and the third overestimated three activities, especially Marketing, and overestimated the Communicating role. The other three project directors underestimated the extent to which linkers performed various activities. In State C, the project

director underestimated the extent to which linkers performed Facilitating kinds of activities; another project director underestimated the activities of Collecting and Communicating, and Communicating behavior cluster; the third project director almost consistently underestimated the extensiveness of linkers' performance, including five activities to a significant extent and the Facilitating role.

Analyses within activities, across states, revealed that half the directors felt that linkers did considerably less collecting of information than linkers reported. The two activities with the most discrepancies included Implementing and Influencing, where two overestimated and two underestimated the extent to which the activities were performed, followed by Monitoring and Producing. Analyses within roles indicates congruity in linker and project directors' perception of the Resource Finding role, while the other two roles are more problematic.

Discussion

The analyses reported in this section revealed particular congruencies and dissonance in linker and project director "real" and "ideal" responses. The results indicated the following:

1. Communicating and Disseminating are consistantly the most extensively performed and preferred activities, from both linkers' and project directors' perspectives; the least performed and preferred activities are Intervening and Producing.

2. Linkers want to be more extensively involved in all the activities; however, there were qualitative differences between their "real" and "ideal" conceptions of their roles, towards wanting to be increasingly involved in the more comprehensive functions within the school improvement process.

3. Project directors' responses were notable in that they basically wanted the linkers to perform each activity with at least the same relative level of effort; those activities that they wanted linkers to do significantly more of tended to involve direct services to clients (i.e., activities that are most tied into clients' specific information needs and problems).

4. Of all the comparisons, those between the linkers' and project directors' "real" responses were the most congruent. However, some discrepancies did exist. For example, project directors placed a much lower value on collecting and organizing information; ideally, they would probably relegate this activity to a resource base specialist, and utilize linkers to a greater extent for analyzing client problems and analyzing the resultant information package. Similarly, project directors place a low priority on producing and implementing activities, probably because these activities can be served by others in the SEA; for example, media or content specialists may produce materials and NDN facilitators may help clients implement new procedures.

5. The results of the analysis within states seem to suggest that there was probably a "wash-out" effect when responses were aggregated across states, and that substantial differences do exist between linker and project director perceptions.

6. The analysis within the six states which matched project directors and linkers suggests that some activities (e.g., Implementing, Influencing) may not be clearly defined, and discrepancies might be attributed to different perceptions of what is involved in performing a particular activity.

EXPLAINING VARIATIONS IN LINKER ROLES

Section 4 of this substudy examines the extent to which project directors' perceptions of the roles performed by linkers serving their projects are associated with the way in which the project has been implemented and/or the characteristics of the setting in which the project is operating. Among the questions examined in this section are:

- Do states with particular demographic characteristics (e.g., size, number of school districts) tend to have similar kinds of linker activities, as perceived by project directors?
- Does the organizational climate of the SEA (e.g., modernity, orientation to change) have an impact upon the project director's perception of the personal linker activities or roles?
- Are particular project and system characteristics related to the extent to which linkers, as perceived by project directors, perform each role?
- Are various linker background variables (training, previous and current positions, type of assistance, etc.) related to project directors' perceptions of linker roles?

Method

Sample. The sample was composed of the 25 project directors included in the analyses presented in previous sections.

Material. In addition to the two sets of response items probing the project directors' perceptions of linker activities, the Project Director Questionnaire included other response items measuring SEA contextual characteristics, project characteristics, and dissemination system characteristics, including characteristics of linkage agents. These data were included in the analysis and were supplemented by statistical data regarding state contextual characteristics and school data from various sources (e.g., National Center for Educational Statistics).

Results

The analysis of these data involved simple bivariate correlations between each of the constructed role variables (i.e., Facilitating, Resource Finding, Communicating) from the project directors' perceptions of linker "real" activities and state and SEA contextual characteristics and project and system characteristics.

In general, the extent to which project directors felt that linkers performed each role was related to project characteristics and characteristics of the linkage agents themselves; no relationships were found with state and SEA contextual characteristics.

Facilitating. Facilitating involves assisting clients in the change process through such activities as planning, influencing, producing, and implementing. Clients are helped to consider, select, adopt, adapt, and install educational improvements. In general, Facilitating was related to the more comprehensive DAG-defined linker functions, including (in ascending order) exchange, choice, and implementation.

Facilitating was related to the degree to which the various dissemination activities of the SEA are coordinated or centralized, and past participation in the Nine State Study, which had emphasized a similar linker role.

The Facilitating role was most closely (although not significantly) associated with part-time IEA linkers (and negatively associated with full-time linkers) and those who primarily are trained linker specialists or, to a lesser extent, either former teachers or administrators with linkage training. This role was associated with the availability and usage of NDN staff, and funding for linkers serving the facilitating role was from federal funding (primarily Title IV and NDN), and negatively associated with SCBP funding.

The facilitator role was associated with most of the variables that measure SEA size, which might indicate that this linker role becomes more vital in the improvement of educational practice when there is a large client base at the local level.

Resource Finding. Resource finding involves collecting, organizing and analyzing information, within the context of examining a specific problem, in order to exchange information about the problem and potential solutions to the problem.

The resource finding role was primarily associated with the number of full-time linkers utilized by the project, irrespective of whether they were located at the SEA, IEA, or LEA level. The major source of support for linkers fulfilling the resource finding role was intermediate unit funds. Resource Finding was associated with personnel who received on-the-job training. This role was associated with the use of school board members and regional and special education staff as linkage elements.

Communicating. Communicating primarily involves communicating, disseminating, and marketing activities, in order to spread the word about available services and share information with clients in a two-way process. More than any of the other roles, it is associated with the degree of personalized contact with clients.

Communicating is associated with the rating of project directors that linkers are able to develop satisfactory relations with their clients, able to understand and analyze a wide variety of problems in a relatively non-technical manner, and are able to assist school personnel in planning and implementing new programs.

Communicating is associated with part-time linkers who are external to their client organizations, and whose support derives, in part, from federal funding. Communicating is associated with other personnel (besides teachers, administrators, or media specialists) who have linkage training, primarily including generalists who were former content specialists.

FINDINGS AND THEIR IMPLICATIONS

The data presented in this report have revealed some interesting findings which, we believe, are of significance for dissemination capacity building and dissemination operations. That these findings are based upon data which, as we have noted, contain methodological shortcomings does not detract from the suggestions provided by the analyses and the implications which result from our interpretations.

> Linker agent activities form discrete clusters of behaviors which correspond to particular roles which have been hypothesized in the literature; but linker behavior usually encompasses more than one role or set of behaviors.

The analysis of statements by linkers of what they actually do as a part of their functioning within the dissemination system has indicated the existence of three clusters of activities which we have defined as linker roles. These roles closely correspond to the roles set forth in the literature, but extend these definitions to include some other behaviors. This role structure findings were confirmed through the further analysis of the perceptions of linker activities from other groups of respondents, including a larger sample of linkers and project directors of 25 SCBP states. We also found that linkers generally cannot be characterized by just one of these roles. Rather, linkers tend to perform activities which cut across particular roles, indicating that linkers identified by state capacity building directors perform a variety of activities in serving their clients.

From these analyses we draw the implication that there is a need for training linkers to fulfill various roles. For example, the behaviors

associated with the Resource Finding role have been shown to be more comprehensive than predicted from theory. Project directors see this role predominantly as one in which the linker's major activities are helping the client analyze his or her problem and analyzing the information received to determine its relevancy; the linkers see the role as primarily collecting information. Project directors need to both clarify their expectations to their linkers and provide them with the necessary analytic skills.

> Although there appears to be congruence in the perceptions of linker activities between project directors and linkers, there appears to be dissonance in the area of the activities linkers want to engage in compared to the desires of project director's.

There are enough congruencies in the perceptions of the linkers and project directors, in terms of activities actually performed, to suggest that the linker role is being performed in a manner consistent with project directors' expectations or perceptions. Communicating with and disseminating information to clients are both the most performed and preferred activities for both groups of respondents. However, project directors stress those activities that involve the delivery of services to clients while linkers indicated a greater desire to become more involved in those activities that focus on direct school improvement processes. We conclude from these analyses that overall there do not appear to be serious dissonances in the perception of the linker role between project directors and linkers; it is clear that linkers want to be more involved in implementation processes and their inability to be so involved may be a cause of some tension and dissatisfaction with their position.

No significant relationships were found between linker behaviors and contextual characteristics. Relationships found between linker behaviors and project characteristics (use of full time vs. part time linkers) probably reflect the demands of the role required by linkers in performing more complex functions.

Our attempt to understand variations in linker activities uncovered few significant relationships between activities and contextual characteristics. This is probably due to the fact that the project directors' perceptions of linker functions were used as the basis for this analysis, not the linkers' perceptions. Therefore, the project directors' perceptions might be considered as average ratings of the extent to which the linkers in their respective states performed each activity, which thereby fails to capture the variations which may exist between linkers. However, the analysis did indicate that for those linker behaviors associated with facilitating school improvement, both full time and better trained (in terms of linker activities) linkers were being utilized then for other linker behaviors. Again this suggests the need for training opportunities for those linkers who are going to be involved in actually assisting in the implementation (change) processes in schools and LEAs.

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APPENDIX A

LINKER FORM

Linker's Name _____

School/Institution _____

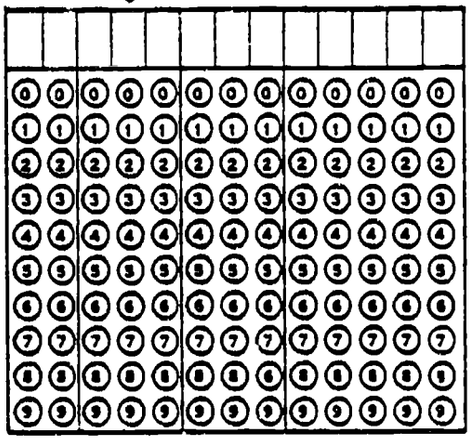
Mailing Address _____
Street

_____
City State Zip Code

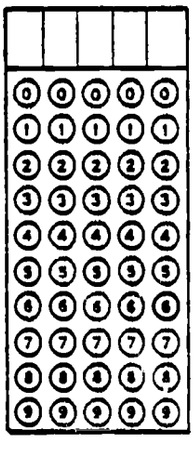
Business Phone Number _____

IDENTIFICATION NUMBER

State Region Linker Service



Approximate Number of Clients
You Serve Per Month



- For marking answers, use No. 2 pencil only.
- Please fill in all circles completely (●).
- Make no marks outside of the circles, except where requested.
- Written information should be given only where boxes ( ) have been supplied.
- Erase completely any answers you wish to change.

OMB No. 51-S-78021 Expiration Date: 12-31-80

"This report is authorized by Law 20 U.S.C. 1221e. While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate and timely."

2348-OOF-543

1. POSITIONS

(Please fill in all circles that apply.)

Previous | Current | LEA | Teacher

- ○ ○ Preschool
- ○ ○ Kindergarten
- ○ ○ Elementary
- ○ ○ Secondary
- ○ ○ Other [ ]

Administrative & Ancillary

- ○ ○ Guidance Counselor
- ○ ○ Principal
- ○ ○ Local Superintendent
- ○ ○ LEA Curriculum Specialist
- ○ ○ Librarian/Media Specialist
- ○ ○ Other [ ]

Intermediate Service Agency

- ○ ○ Consultant
- ○ ○ Administrator
- ○ ○ Support Staff
- ○ ○ Project Director
- ○ ○ Information Specialist/Dissemination Coordinator
- ○ ○ Other [ ]

SEA

- ○ ○ Curriculum/Instruction Specialist
- ○ ○ Research, Planning and Evaluation Specialist
- ○ ○ Vocational Education
- ○ ○ Special Education
- ○ ○ Bilingual Education
- ○ ○ Title I Coordinator
- ○ ○ Title IV Coordinator
- ○ ○ Title IX Coordinator
- ○ ○ Information Specialist/Dissemination Coordinator
- ○ ○ Other [ ]

POST SECONDARY EDUCATION

- ○ ○ Junior/Technical College Professional
- ○ ○ Junior/Technical College Administrator
- ○ ○ Institute of Higher Education Professional
- ○ ○ Institute of Higher Education Administrator
- ○ ○ Graduate Student
- ○ ○ Other [ ]

EDUCATIONAL LABORATORY OR R&D CENTER

- ○ ○ Professional
- ○ ○ Administrator
- ○ ○ Other [ ]

2. EDUCATION

What is the highest degree that you have achieved?
(Please fill in one circle.)

- Less than a B.A. or B.S. . . . . ○
- A B.A. or a B.S. . . . . ○
- Additional graduate credits beyond a B.A. or B.S. . . . . ○
- An M.A. or an M.S. . . . . ○
- Additional graduate credits beyond an M.A. or an M.S. . . . . ○
- A Ph.D. or Ed.D. . . . . ○
- Other [ ] ○

3. To what extent do you perform the following functions in your role as linking agent?

	Never				Usually
Spread of information through media, printed materials, and other one-way methods to clients.	①	②	③	④	⑤
Exchange of information between clients and the information resource base	①	②	③	④	⑤
Encouragement or training to enhance decision-making skills which enable a choice of information and activity from alternatives.	①	②	③	④	⑤
Assisting clients in implementing new methods.	①	②	③	④	⑤

4. PROFESSIONAL EXPERIENCE IN EDUCATION

(Please fill in one circle.)

- 0 to 2 years . . . . . ○
- 3 to 5 years . . . . . ○
- 6 to 10 years . . . . . ○
- 11 or more years . . . . . ○

5. Linkers come from different backgrounds with different types of training and experience. For the content areas listed below, please indicate whether you have substantial expertise or some expertise by filling in the appropriate circle. If you have little or no expertise, leave the circles blank.

Substantial Expertise
Some Expertise

Curriculum Areas

- ○○ Art Education
- ○○ Business Education
- ○○ Consumer Education
- ○○ Dramatics
- ○○ Driver Education
- ○○ Drug/Alcohol Education
- ○○ Environmental Education
- ○○ Ethnic Studies
- ○○ Foreign Language Arts
- ○○ Health Education
- ○○ Home Economics
- ○○ Language Arts
- ○○ Literature
- ○○ Mathematics
- ○○ Metric Education
- ○○ Music Education
- ○○ Nutrition
- ○○ Physical Education
- ○○ Reading
- ○○ Religion
- ○○ Safety Education
- ○○ Science
- ○○ Sex Education
- ○○ Social Studies
- ○○ Vocational Education
- ○○ Other [ ]

Learners with Special Needs

- ○○ Adult Learners
- ○○ Behavior Disordered
- ○○ Bilingual
- ○○ Community Members
- ○○ Drop-Outs
- ○○ Early Childhood
- ○○ Educable Mentally Handicapped
- ○○ Gifted and Talented
- ○○ Hearing Impaired
- ○○ Homebound/Hospitalized
- ○○ Learning Disabled
- ○○ Migrant Learners
- ○○ Multiply Handicapped
- ○○ Neglected/Delinquent
- ○○ Physically Handicapped
- ○○ Severe/Profound Handicapped
- ○○ Speech/Language Impaired
- ○○ Trainable Mentally Handicapped
- ○○ Visually Impaired
- ○○ Other [ ]

Substantial Expertise
Some Expertise

Services

- ○○ Child Care (Day Care)
- ○○ Child Welfare
- ○○ Conferences
- ○○ Consultations
- ○○ Counseling/Guidance
- ○○ Demonstrations
- ○○ Diagnostics
- ○○ Information Dissemination
- ○○ Information Retrieval
- ○○ Instruction
- ○○ Learning Center/Library
- ○○ Media/Materials
- ○○ Media Production
- ○○ Medical & School Health
- ○○ Organizational Development
- ○○ Parents
- ○○ Personal Custodial Care
- ○○ Psychiatric
- ○○ Psychological
- ○○ Rehabilitation
- ○○ Remediation
- ○○ Research
- ○○ Residential
- ○○ Staff Development
- ○○ Statistics
- ○○ Teacher Center
- ○○ Workshops
- ○○ Other [ ]

Special Programs

- ○○ Alternative Education
- ○○ Child Abuse and Neglect
- ○○ Community Education
- ○○ Compensatory Education
- ○○ Desegration, Civil Rights
- ○○ Elim. of Sex Discrim. (Ti. IX)
- ○○ Individualized Instruction
- ○○ Inservice Teacher Training
- ○○ Least Restrictive Alternatives
- ○○ Mainstreaming
- ○○ Motivation
- ○○ Parenthood Education
- ○○ Pre-Service Teacher Training
- ○○ Right-To-Read
- ○○ Rights (Student/Parent)
- ○○ School Foods
- ○○ Staff Development
- ○○ Truant Alternative Education
- ○○ Women's Studies
- ○○ Other [ ]

Substantial Expertise
Some Expertise

Administrative Areas

- ○○ Advisory Board
- ○○ Auditing
- ○○ Community Relations
- ○○ Enrollment
- ○○ Facilities & Physical Plant
- ○○ Financial
- ○○ Grants/Funding
- ○○ Legal
- ○○ Organizational
- ○○ Operational/MBO
- ○○ Personnel & Staffing
- ○○ Steering Committee
- ○○ Supervision
- ○○ Transportation
- ○○ Other [ ]

Concept or Skill Areas

- ○○ Affective Education
- ○○ Aging
- ○○ Career Education
- ○○ Child Development
- ○○ Communicative Skills
- ○○ Daily Living Skills
- ○○ Death and Dying
- ○○ Educational Technology
- ○○ Emotional Development
- ○○ Moral Education
- ○○ Motor Skills
- ○○ Perceptual Skills
- ○○ Recreation Readiness
- ○○ Self Concept
- ○○ Social Development
- ○○ Values Education
- ○○ Visual Literacy
- ○○ Other [ ]

Program Planning, Developme and Evaluation

- ○○ Assessment
- ○○ Effective Ed. Programming
- ○○ Educational Planning
- ○○ Pre-Service Education
- ○○ In-Service Education
- ○○ Teaching Methods & Techniq
- ○○ Instrument Development
- ○○ Proposal Development
- ○○ Curriculum Dev./Revision
- ○○ Curriculum Evaluation
- ○○ Materials Evaluation
- ○○ Program Evaluation
- ○○ Student Evaluation
- ○○ Teacher Evaluation
- ○○ Other [ ]

6. This question is comprised of two parts, one for the "real" world in which you work and one for the "ideal" world in which you would like to work. First, in the column marked "REAL," please estimate the extent to which you perform each of the following functions in your role as linking agent. Second, in the column marked "IDEAL," please estimate the extent to which you would perform the same functions in your role as linking agent in an ideal world.

	"REAL"					"IDEAL"				
	Never				Almost Always	Never				Almost Always
Collecting and organizing information (e.g., securing and arranging information for client problems)	①	②	③	④	⑤	①	②	③	④	⑤
Analyzing information (e.g., determining the relevance of information to client problems)	①	②	③	④	⑤	①	②	③	④	⑤
Analyzing problems (e.g., translating client problems into informational and resource needs)	①	②	③	④	⑤	①	②	③	④	⑤
Monitoring ideas (e.g., keeping abreast of recent educational practices and innovations)	①	②	③	④	⑤	①	②	③	④	⑤
Managing conflict (e.g., helping others resolve discord)	①	②	③	④	⑤	①	②	③	④	⑤
Intervening (e.g., proactively seeking client needs)	①	②	③	④	⑤	①	②	③	④	⑤
Communicating (e.g., maintaining open personal communication with clients)	①	②	③	④	⑤	①	②	③	④	⑤
Disseminating (e.g., sharing information with clients in a two-way process)	①	②	③	④	⑤	①	②	③	④	⑤
Planning (e.g., preparing for future needs and services)	①	②	③	④	⑤	①	②	③	④	⑤
Marketing (e.g., promoting awareness of available services)	①	②	③	④	⑤	①	②	③	④	⑤
Implementing (e.g., assisting clients to install a new procedure)	①	②	③	④	⑤	①	②	③	④	⑤
Producing (e.g., developing materials or procedures for client utilization)	①	②	③	④	⑤	①	②	③	④	⑤
Influencing (e.g., promoting concepts and ideas for client utilization)	①	②	③	④	⑤	①	②	③	④	⑤

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REFERENCES

The NTS Research Corporation reports for this study all have the general title Building Capacity for the Improvement of Educational Practice. The complete set of volume is as follows:

Volume I — Final Report: Building Capacity for the Improvement of Education, An Evaluation of NIE's State Dissemination Grants Program (April 1981)

Volume II — 1979 State Abstracts: State Dissemination Efforts (April 1980)

Volume III — A Study of Linker Agent Activities and Roles (April 1981)

Volume IV — A Study of the Development of Scales Measuring Dissemination Capacity (April 1981)

Volume V — Executive Summary (April 1981)

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